AMENDMENTS TO THE CLAIMS:

Please cancel without prejudice claims 59, 63 and 64, amend claims 51, 60-62, 65, 70, 71, 80-85, 92, 95 and 96 and add newly written claims 97 and 98 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-50. (cancelled)

51. (currently amended) A molecular single electron transistor (MSET) detector device comprising at least one organic molecule attached to a drain electrode and a source electrode wherein~~, in use~~a first layer of material provides the source electrode and a second layer of material provides the drain electrode, said first and second layers are spaced apart by a third layer of substantially insulating material, where at least one of said first and second layers is comprised of a silicon semiconductor, wherein, said at least one organic molecule provides a quantum confinement region ~~characterised in that~~and at least one analyte receptor site is provided in the vicinity of said at least one organic molecule.

52. previously presented) A device according to claim 51 wherein the at least one organic molecule provides at least one analyte receptor site.

53. (previously presented) A device according to claim 51 wherein at least one analyte receptor site is located adjacent, but is not attached to, said at least one organic molecule.

54. (previously presented) A device according to claim 51 wherein said at least one organic molecule is an elongated conjugated organic molecule having first and second ends, the first end being attached to the source electrode and the second end being attached to the drain electrode.

55. (previously presented) A device according to claim 51 wherein a single organic molecule is attached to the source electrode and the drain electrode.

56. (previously presented) A device according to claim 51 wherein said at least one organic molecule is attached to the source and drain electrodes via tunnel barriers.

57. (previously presented) A device according to claim 56 wherein the tunnel barriers are provided by electrically insulating regions of said at least one organic molecule.

58. (previously presented) A device according to claim 56 wherein the source and drain electrodes each comprise an insulating material that forms said tunnel barriers.

59. (cancelled).

60. (currently amended) A device according to claim ~~59~~51 and further comprising a gate electrode.

61. (currently amended) A device according to claim ~~59~~51 wherein a recess is provided in the third layer of substantially insulating material to provide a region between the source and drain electrodes in which the at least one organic molecule is located.

62. (currently amended) A device according to claim ~~59~~51 wherein the thickness of the third layer of substantially insulating material is substantially equal to the length of the at least one organic molecule.

63. (cancelled).

64. (cancelled).

65. (currently amended) A device according to claim ~~64~~51 wherein the at least one organic molecule comprises end chains that will bind to silicon.

66. (previously presented) A device according to claim 60 wherein the first layer of material comprises a silicon wafer, the second layer of material comprises polysilicon and the third layer of substantially insulating material comprises a silicon oxide.

67. (previously presented) A device according to claim 66 wherein the wafer additionally carries a layer of polysilicon to form the gate electrode, the fourth layer being separated from the silicon wafer by a layer of silicon oxide.

68. (previously presented) A device according to claim 66 that is formed using a process that comprises a complementary metal oxide semiconductor (CMOS) fabrication process.

69. (previously presented) A device according to claim 51 and further comprising means for measuring the conductivity of the at least one organic molecule as a function of applied source-drain voltage.

70. (currently amended) A device according to claim ~~70~~51 and further comprising means for measuring the conductivity of the at least one organic molecule as a function of applied gate voltage.

71. (currently amended) A device according to claim ~~59~~51 and further comprising integral electronic circuitry for measuring the conductivity of the at least one organic molecule.

72. (previously presented) A fluid analyser comprising an MSET device according to claim 51.

73. (previously presented) An analyser according to claim 72 and further comprising a pre-concentrator for releaseably retaining analytes from a fluid.

74. (previously presented) An analyser according to claim 73 wherein the pre-concentrator comprises a layer of material having a plurality of apertures through which a fluid

can be passed, the internal surfaces of said apertures being adapted to releaseably retain analytes from the fluid.

75. (previously presented) An analyser according to claim 74 wherein the internal surfaces defining said plurality of apertures of the pre-concentrator are porosified.

76. (previously presented) An analyser according to claim 74 wherein the layer of material from which the pre-concentrator is formed comprises a layer of silicon, said apertures being formed through said layer of silicon and arranged to form a honeycomb structure.

77. (previously presented) An analyser according to claim 74 wherein the internal surfaces of the apertures of the pre-concentrator are reversibly adsorptive.

78. (previously presented) An analyser according to claim 73 wherein the pre-concentrator comprises a heater.

79. (previously presented) An analyser according to claim 73 and further comprising a fluid gating structure for controlling the flow of fluid from the pre-concentrator to the MSET device.

80. (currently amended) An analyser according to claim ~~73~~79 wherein the fluid gating structure is arranged to selectively route fluid from the pre-concentrator to either one of the MSET device and an exhaust port.

81. (currently amended) An analyser according to claim ~~73~~79 wherein the fluid gating structure comprises a substantially planar substrate and a shutter that is moveable in the plane of said substrate.

82. (currently amended) An analyser according to claim ~~73~~79 wherein fluid is routed from the fluid gating structure to the MSET device along a channel having a long axis that is substantially perpendicular to the plane of the substantially planar substrate of the fluid gating structure.

83. (currently amended) An analyser according to claim ~~73~~79 wherein the fluid gating structure comprises a shutter that is shaped such that it can engage and seal the entrance to said channel.

84. (currently amended) An analyser ~~according to claim 73~~comprising a fluid analyzer and a pre-concentrator for releasably retaining analytes from a fluid including an MSET device comprised of at least one organic molecule attached to a drain electrode and a source electrode, wherein, said at least one organic molecule provides a quantum confinement region and at least one analyte receptor site is provided in the vicinity of said at least one organic molecule, wherein ~~the~~a shutter may be retained, without the application of power, in an open position in which fluid is routed from the pre-concentrator to the MSET device or in a closed position in which fluid is routed from the pre-concentrator to an exhaust port.

85. (currently amended) An analyser according to claim ~~73~~83 wherein the shutter is a micro-electromechanical (MEMS) shutter.

86. (previously presented) An analyser according to claim 85 wherein the fluid gating structure comprises a MEMS electro-thermal actuation mechanism to impart movement to the MEMS shutter.

87. (previously presented) An analyser according to claim 86 wherein the fluid gating structure further comprises a MEMS compliant displacement mechanism.

88. (previously presented) An analyser according to claim 79 wherein the pre-concentrator, fluid gating device and MSET device are formed as substantially planar layers and are arranged in a stack.

89. (previously presented) An analyser according to claim 88 wherein each substantially planar layer comprises silicon.

90. (previously presented) An analyser according to claim 72 and further comprising a fluid pump.

91. (previously presented) An analyser according to claim 72 and further comprising an integral power source.

92. (currently amended) A method of chemical detection comprising the steps of~~:~~:

(a) taking a molecular single electron transistor comprising at least one organic molecule attached to a drain electrode and a source electrode, said electrodes spaced apart by a substantially insulating layer, wherein at least one of the source and drain electrodes comprises a silicon semiconductor and wherein, ~~in use,~~ said at least one organic molecule provides a quantum confinement region; and

(b) providing at least one analyte receptor site in the vicinity of said at least one organic molecule for receiving analytes.

93. (previously presented) A method of chemical detection according to claim 92 and further comprising the step of (c) measuring the electrical characteristics of said molecular single electron transistor to determine the presence or otherwise of an analyte.

94. (previously presented) A method of chemical detection according to claim 92 and further comprising the step of passing a fluid over the at least one analyte receptor site.

95. (currently amended) A molecular single electron transistor (MSET) detector device comprising at least one organic molecule attached to a drain electrode and a source electrode wherein, in use, said at least one organic molecule provides a quantum confinement region wherein, ~~characterised in that~~ at least one of said source electrode and said drain electrode are formed from silicon semiconductor material and are spaced apart by a substantially insulating material, wherein at least one analyte receptor site is provided in the vicinity of said at least one organic molecule.

96. (currently amended) A method of forming a molecular single electron transistor comprising the steps of (i) forming source and drain electrodes and (ii) locating an organic molecule between said source and drain electrodes, ~~characterised in that~~wherein the source and drain electrodes are formed using a complementary metal oxide (CMOS) process, and wherein at least one of said source and drain electrodes are formed from silicon semiconductor and are spaced apart by a substantially insulating layer, wherein at least one analyte receptor site is provided in the vicinity of said at least one organic molecule.

97. (new) A plurality of MSET devices according to claim 51, wherein said devices are arranged in an array, each of said devices having an organic molecule and different receptors are attached to each molecule.

98. (new) A molecular single electron transistor (MSET) detector device comprising at least one organic molecule attached to a drain electrode and a source electrode wherein

said at least one organic molecule provides a quantum confinement region and at least one analyte receptor site is located adjacent, but is not attached to, said at least one organic molecule.